this rejection is respectfully requested for the following reasons. First, it should be noted that Howarth is directed to an optical reflectance and method therefore and, in particular, describes apparatus for measuring the reflectance of a specimen. Applicant's invention in these claims, however, is directed to interactance and the claims specifically refer to providing illumination by way of a plurality of different independent paths through a specimen. It should also be noted that the term "independent" has been inserted in claim 1 and other claims (see claims 4, 5 and 7). Thus, not only is there a difference in the nature of the device (interactance vs. reflectance), but there is a substantial difference in how the two devices work.

It is clear that Howarth does not provide independent paths of illumination either to or through a sample. No doubt the Examiner is referring to Figures 2A and 2B in his inferring of a plurality of paths. In fact, those sketches are mere fictions. References in this regard is made to column 3, lines 7-10, where it is stated "the actual optical paths in the pulp are random. However, as shown in Figures 2A and 2B they are illustrated as typical mean paths." Accordingly, there are a number of different wavelengths which in a mix find their way to the radiation receiver 18. They are transmitted, however, along a single path, certainly not along independent paths. Thus, no rejection under 35 U.S.C. 102(b) or 103 could possibly apply based on Howarth.

The Examiner also rejected claims 7, 9, 10 and 20 under 35 U.S.C. § 102(b) as being anticipated by Tachibana. Again, Tachibana relates to a reflectance arrangement and not an interactance or transmittance arrangement and there is no development of optical information along a plurality of different independent paths through an illuminated specimen as required by claim 7, for example. Further, with respect to claim 20, the capsule illustrated in Tachibana is not a "small size" sample as discussed in the text of applicant's invention (for example the size of a seed). Small size measurements clearly are more difficult particularly when one is attempting to transmit illumination through the specimen.

Claims 7, 8, 9, 11, 12 and 13 were rejected under 35 U.S.C. § 102(b) as anticipated by Lebling et al. Lebling again clearly is directed to a reflectance instrument and directs no illumination through a sample. In the context of claim 11, there is no provision of a plurality of rings (as now amended). Note that Lebling applies his fiber optic elements from a single point at the side of the specimen.

Claims 14, 20 and 27 were rejected under 35 U.S.C. § 103 as being unpatentable over Lebling. Again, the distinction here is that Lebling teaches pure reflectance, does not provide a plurality of rings and his teachings with regard to the angle have no bearing on the interactance and transmittance aspects of applicant's invention.

The major catchall rejection is to claims 1-6, 21, 22, 23, 24, 25 and 28-32 under 35 U.S.C. § 103 as being unpatentable over Lebling et al. in view of Azuma et al., Munekuni and Hasequawa. Lebling has been discussed above. It is clear that the remaining references offer nothing in addition to Lebling insofar as their teaching or any possibility of combining these teachings with Lebling. Azuma, for example, relates to a method for measuring reflectance and apparently is not an instrument per se but a complex laboratory setup for performing the method. Further, Azuma, utilizes a single light source and measures a plurality of reflectances emanating from the measuring element 6. This has nothing to do with the supply of a plurality of illumination sources to develop different paths through a sample for interactance and transmittance measurements.

Munekuni teaches the method of making a highly accurate measurement of the haze of a fast moving film-like object with the position of light projecting and receiving ends of optical fibers fixed to the object while receiving light at a wide angle. Again, this has nothing to do with applicant's invention. The Examiner cites Munekuni for measuring the transmitted light existing at a sample at a plurality of different angles, however, that is not seen from the diagram of Figure 1 where the projecting ends and the receiving ends of the fiber optic elements appear to be perpendicular to the film like object 9.

Hasequawa relates to the application of a single beam of light entering a colloidal suspension which beam goes through

the suspension without deflection if there is no colloidal suspension. Otherwise the beam will be scattered and then redirected by lens 4 to a different light receiving means 9. Either light receiving means 9 or light receiving means 8 provides a go/no-go sense as to whether a colloidal suspension is present. This reference also has nothing to do with applicant's invention and none of these three references, Azuma et al., Munekuni and Hasequawa could under any circumstances be combined with Lebling et al. to provide interactance and/or transmittance measurements.

The Examiner also rejected claims 15, 17 and 19 under 35 U.S.C. § 103 as being unpatentable over Lebling et al. in view of Fukui et al. Since these claims depend, directly or indirectly, from a claim already shown to be allowable, further discussion is not believed necessary.

Claim 18, was rejected under 35 U.S.C. § 103 as being unpatentable over Lebling et al. in view of Azuma et al. Again, since this claim depends from a claim already shown to be allowable, further discussion is not believed necessary.

The Examiner also rejected claim 26, under 35 U.S.C. § 103 as being unpatentable over Azuma et al. in view of Gerber and Ten Bosch et al. Azuma et al. clearly is not an instrument but is a laboratory set up for effecting a method. A single light beam is directed toward a specimen and reflections thereof are picked up by photodetectors mounted in different directions with respect to the surface of the measuring element. Thus, this

teaching in Azuma et al. is clearly not a probe, it is not useful as a portable instrument, provides only reflectance measurements and misses the entire point of claim 26. The Examiner seeks to supplement the missing teachings of Azuma et al. in Gerber and Ten Bosch et al. Gerber does show the use of a single ring of fibers in a reflectance measurement, however, again that fails to meet the limitations of claim 26 as to a plurality of rings in a very specific construction within a probe. The mere existence of a probe in accordance with Ten Bosch et al. simply fails to provide any reason why one of ordinary skill in the art would be able to construct a single instrument for making transmittance reflectance and interactance measurements in a very special arrangement as claimed in claim 26. Accordingly, claim 26 is clearly unobvious and patentable over the cited combination of references.

It is submitted that, if the essence of applicant's invention in the provision of a particularly useful instrument for effecting difficult transmittance and interactance measurements and improving the quality of those measurements by providing a plurality of light paths to and/or through a specimen and particularly in view of the very utilitarian probe in accordance with applicant's invention for effecting such measurements were properly considered, the Examiner will be convinced that none of the prior art either individually or in fair combination teach or suggest the claimed invention of applicant.

Based on the above, it is submitted all of the claims, as amended, should be allowed and the application promptly passed to issue. If the Examiner requires discussion regarding any issue, he is encouraged to contact the undersigned attorney to resolve any problems.

Respectfully submitted,

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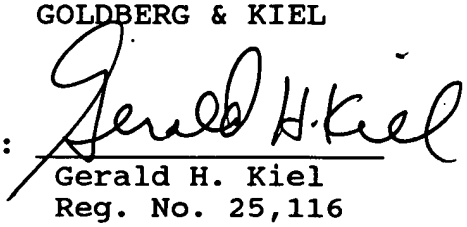
By: 
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